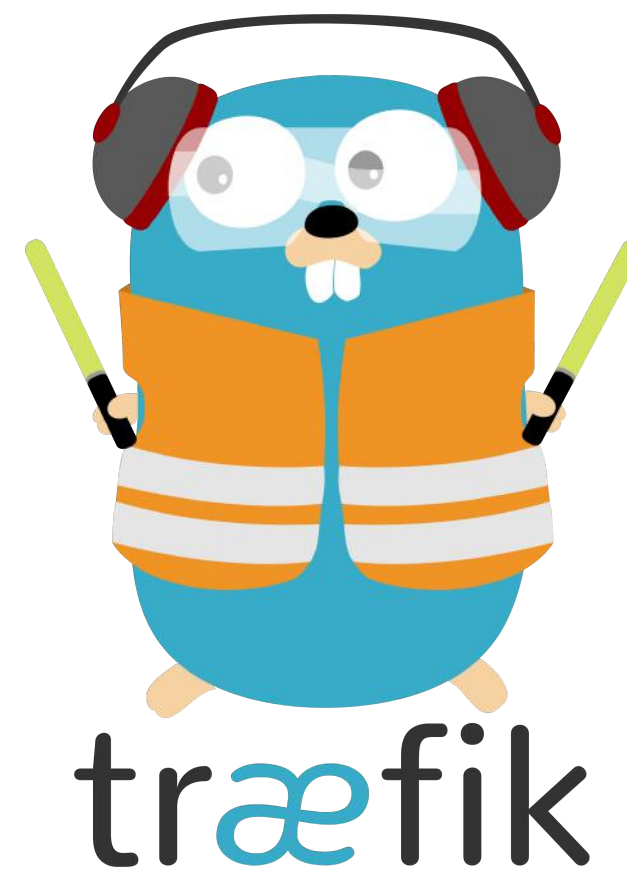


# You Had One Job: Configuring The Edge Proxy!



DevOps Pro Europe Vilnius 2019

# About This Presentation

- Presentation available at <https://containous.github.io/slides/devopspro-vilnius-2019>



- **Q & A:** Join at <https://slido.com> with code #devops2019

# Whoami

- Damien DUPORTAL:
  - Træfik's Developer 🥑 Advocate @ Containous
- 🐦 @DamienDuportal
- 🐙 dduportal

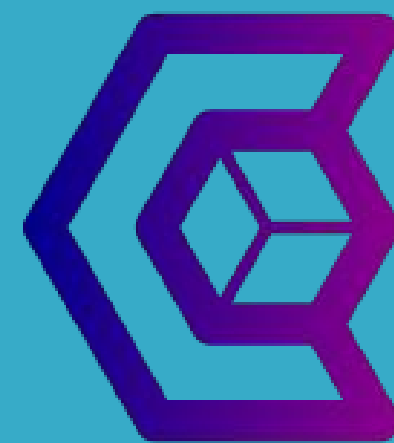


# How To Use These Slides?

- **Browse the slides:** Use the arrows
  - Change chapter: Left/Right arrows
  - Next or previous slide: Top and bottom arrows
- **Overview of the slides:** keyboard's shortcut "o"
- **Speaker mode (and notes):** keyboard's shortcut "s"

# Containous

- <https://containo.us>
- We Believe in Open Source
- We Deliver Traefik
- Commercial Support for Traefik
- 20 people, 90% technical experts



# Why Traefik?



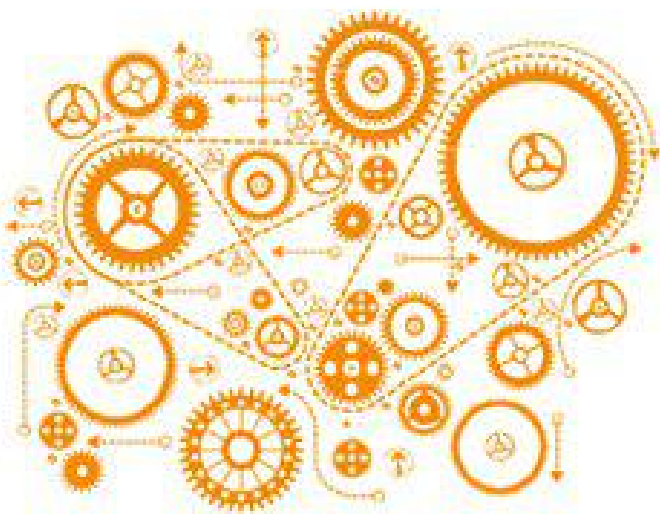
Why, Mr Anderson?

# Evolution Of Software Design

1990s and earlier

**Coupling**

**Pre-SOA (monolithic)**  
Tight coupling



2000s

**Traditional SOA**  
Looser coupling

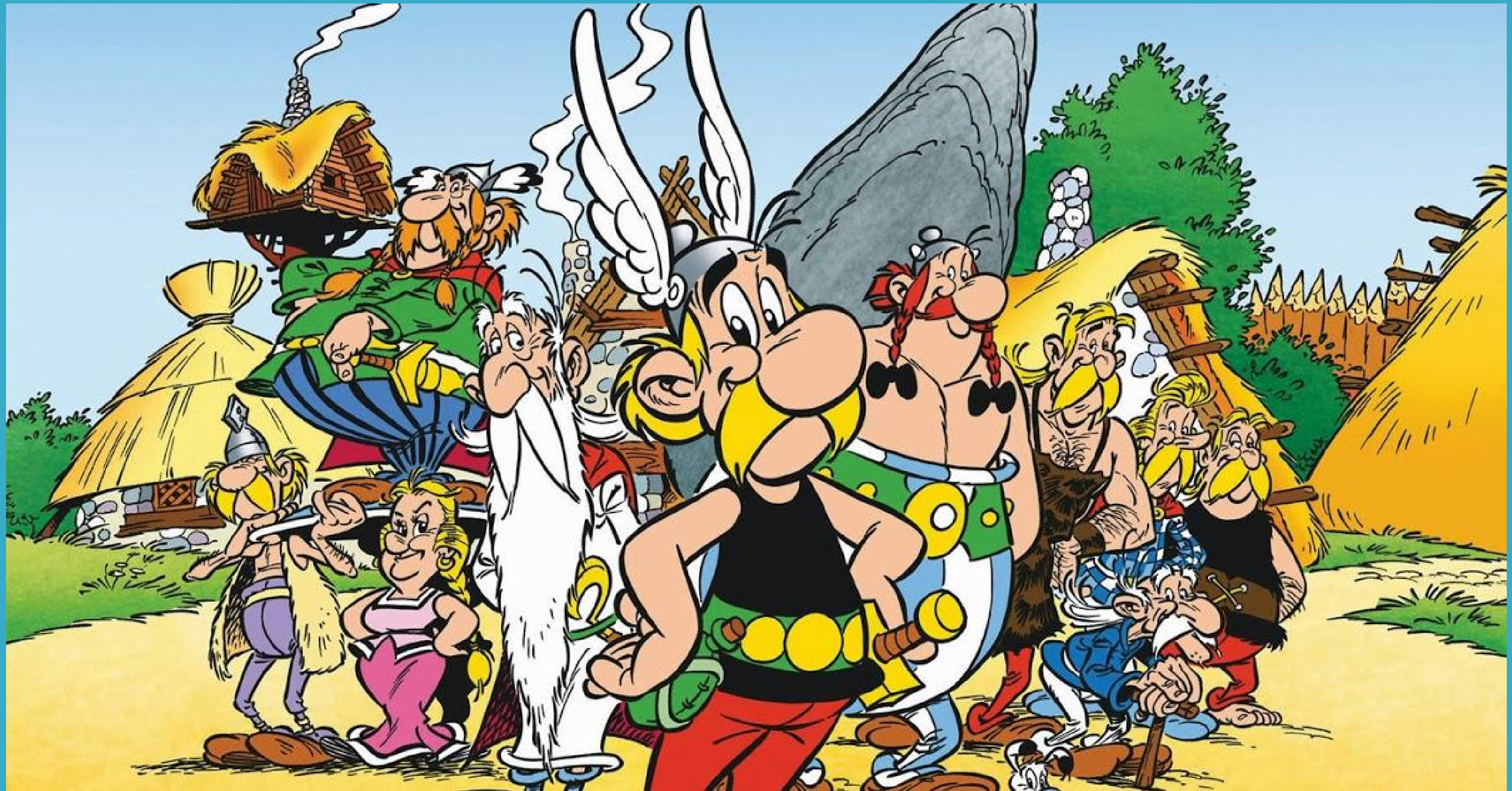


2010s

**Microservices**  
Decoupled



# The Premise Of Microservices...

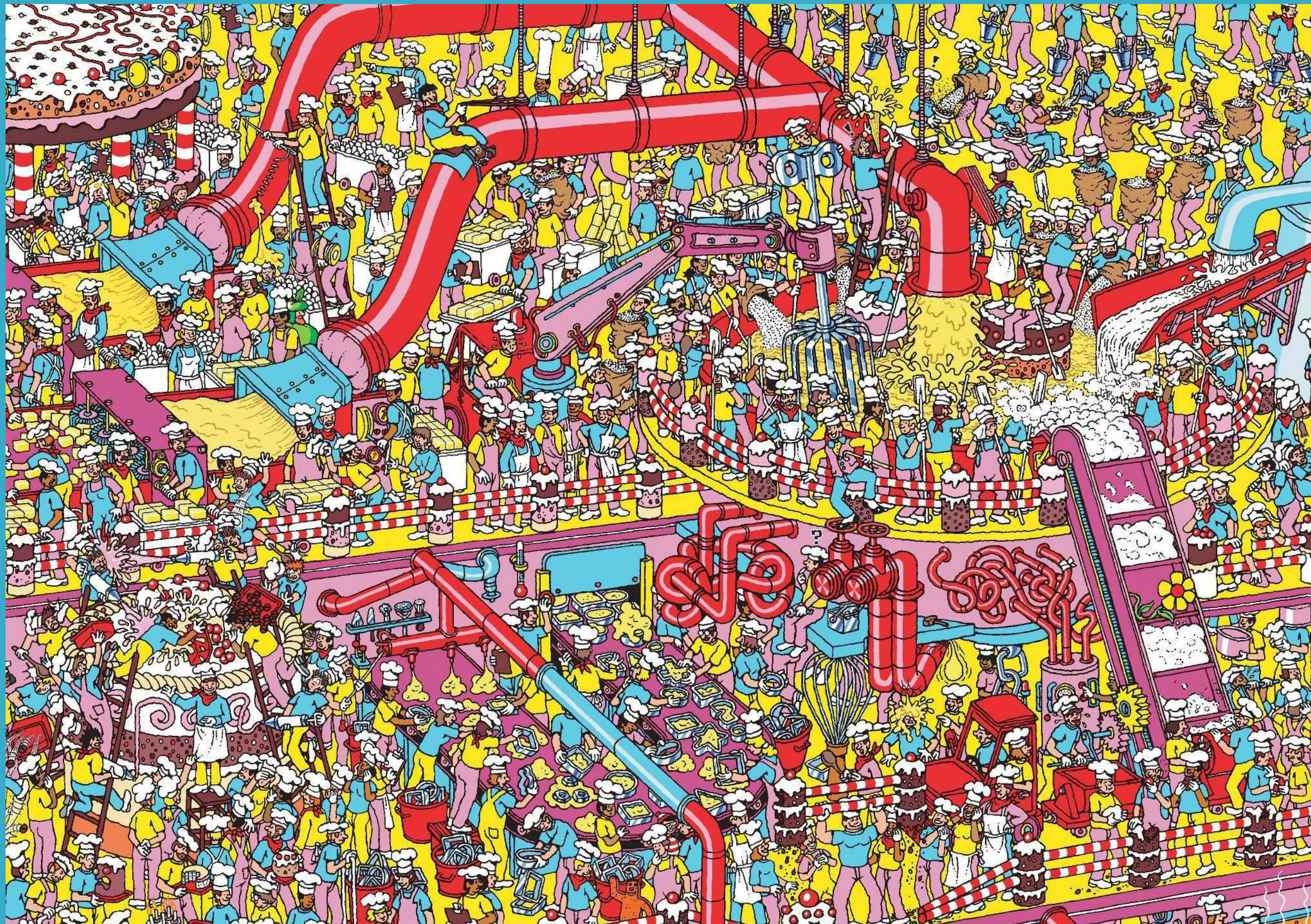




# ...And What Happens

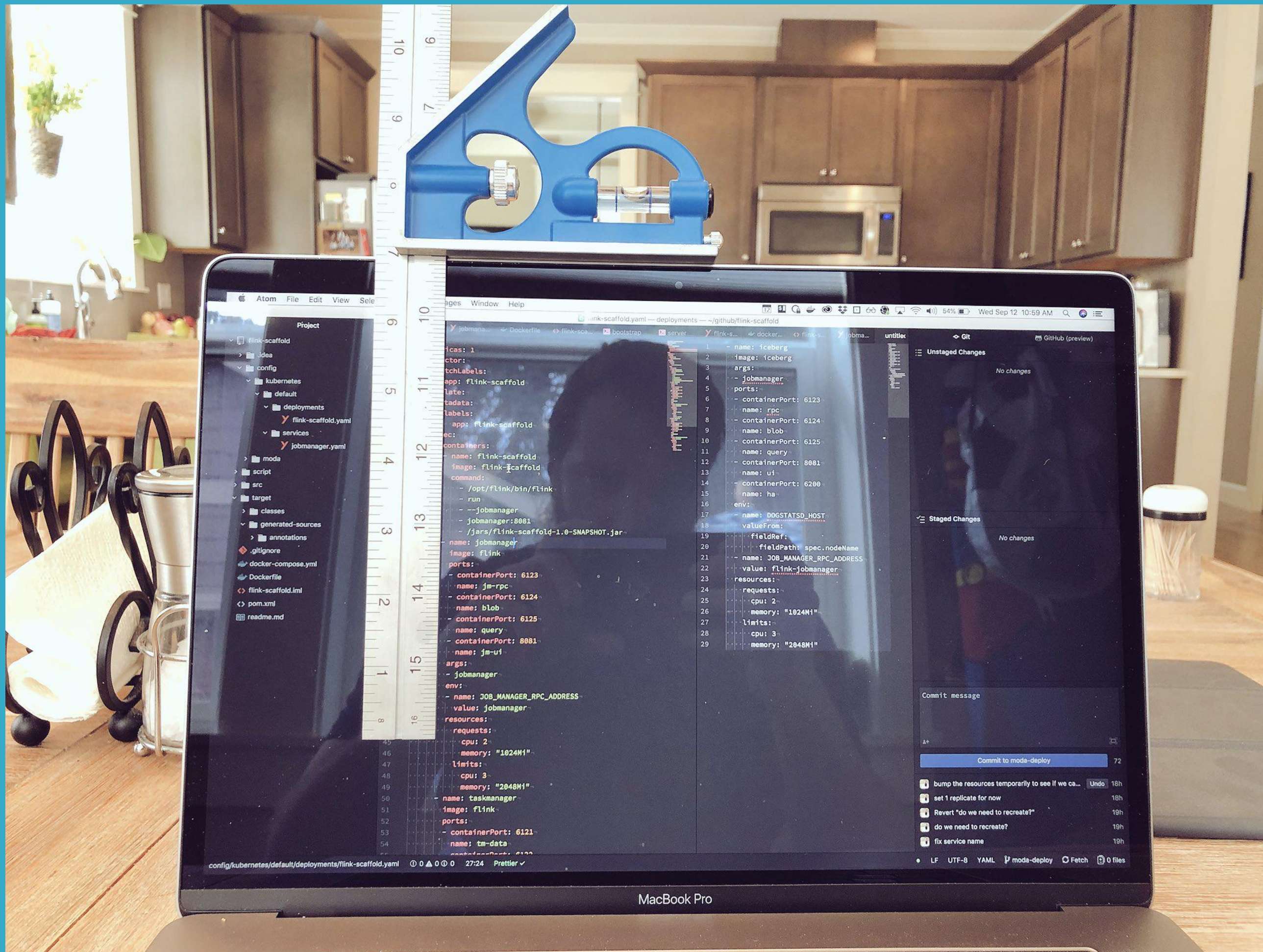


# Where Is The Service?



# Tools Of The Trade





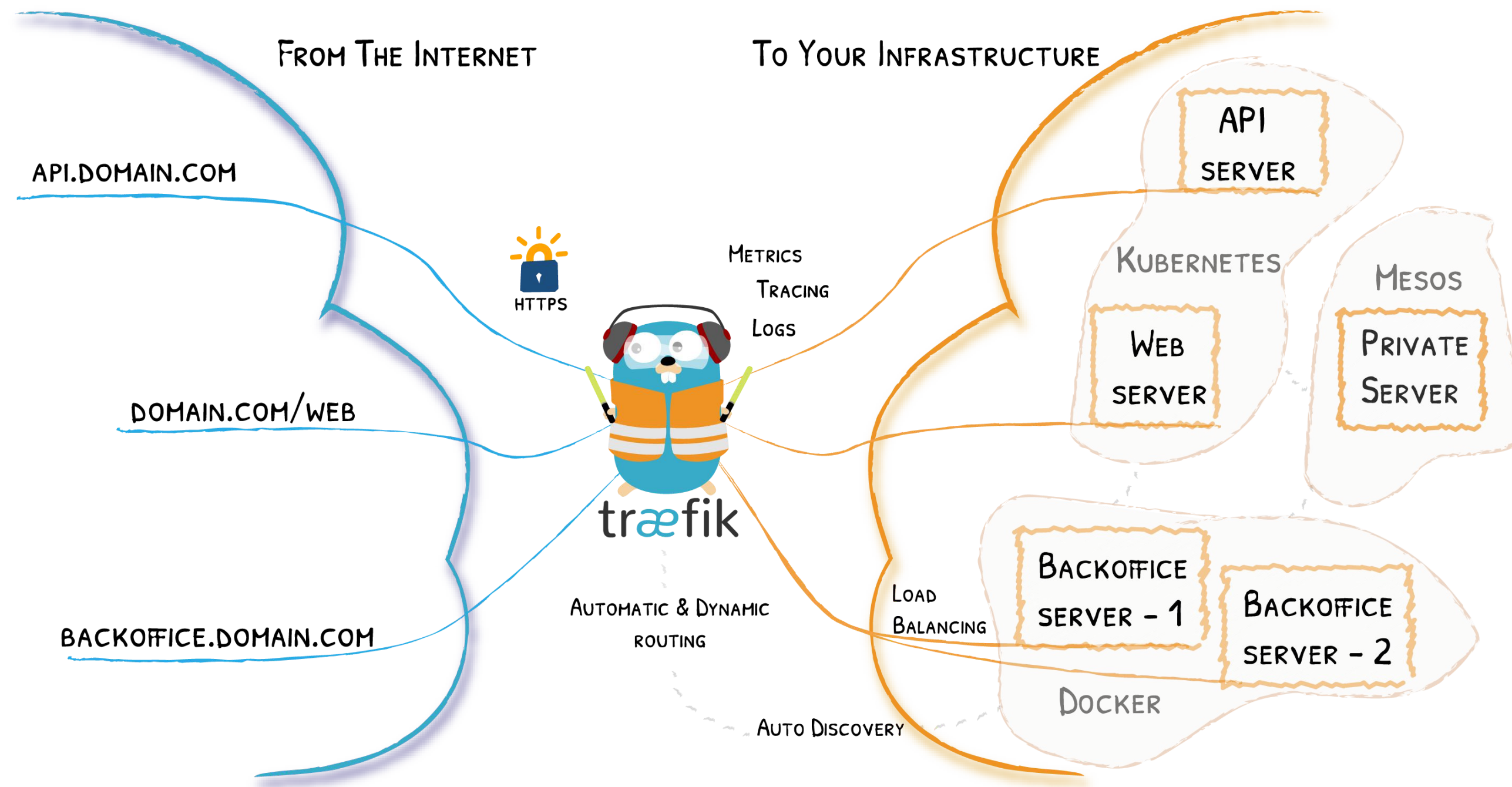
Source: <https://twitter.com/Caged/status/1039937162769096704>

# What If I Told You?



That You Don't Have to Write This Configuration File...?

# Here Comes Traefik!



# Traefik Project

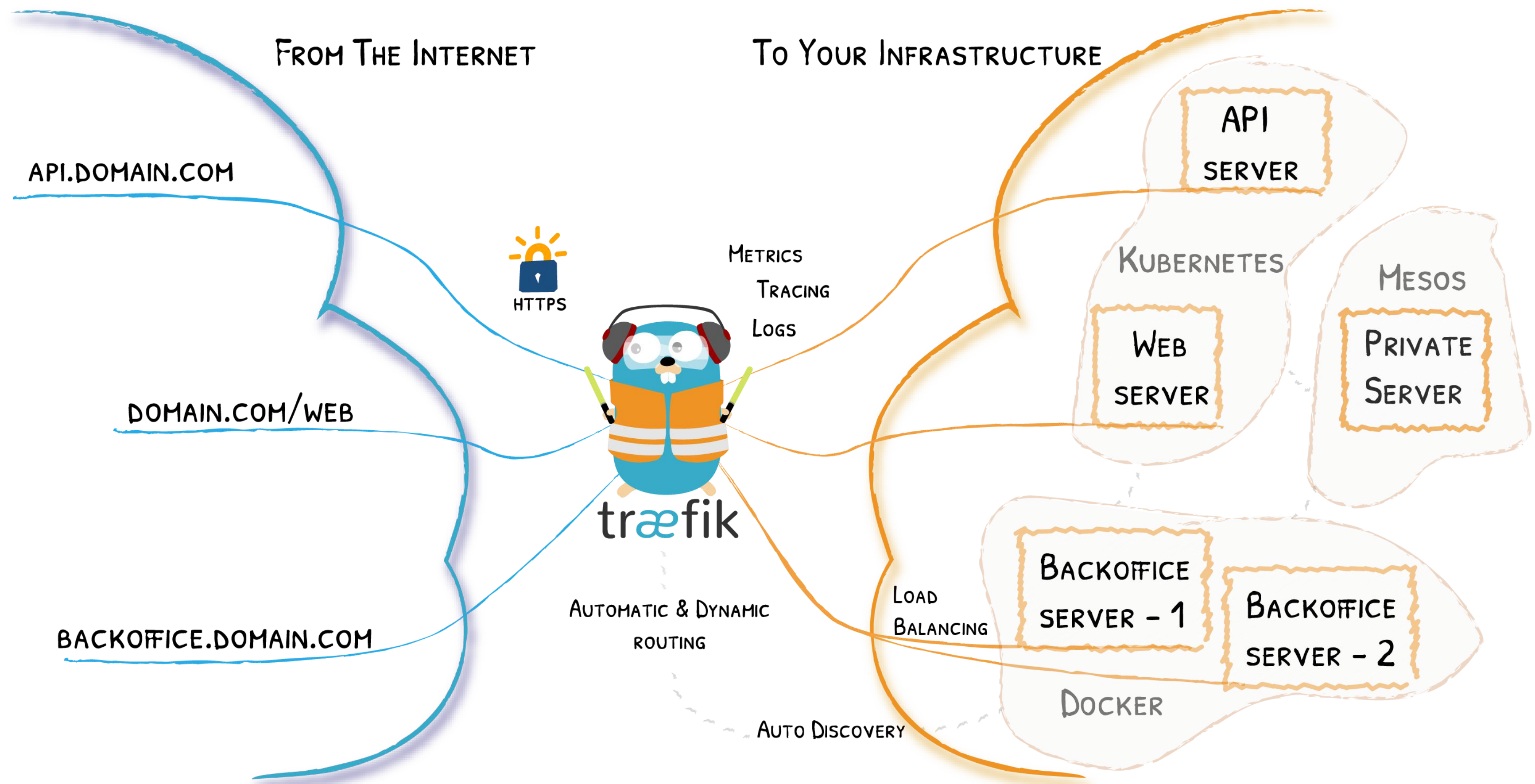
-  <https://github.com/containous/traefik>
- MIT License
- Written in Go, a popular language
- 20,000+ 
- 500M+ 
- 350+ 

# Traefik Core Concepts





# Remember The Diagram?



# Let's Simplify

FROM THE INTERNET

TO YOUR INFRASTRUCTURE

BACKOFFICE.DOMAIN.COM



traefik

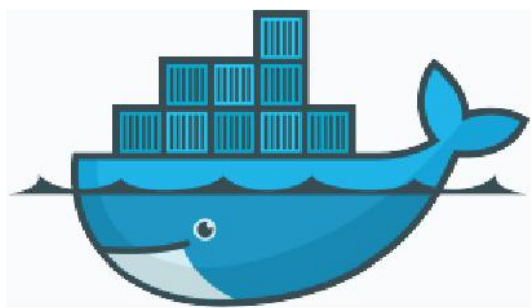
AUTOMATIC & DYNAMIC  
ROUTING

AUTO DISCOVERY

BACKOFFICE  
SERVER - 1

DOCKER

# Providers



træfik

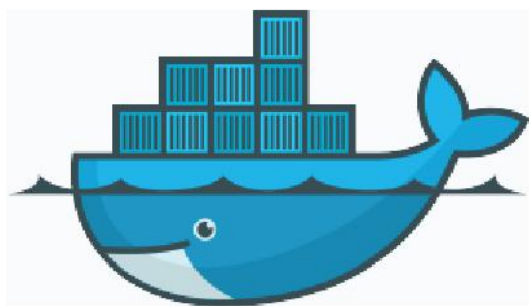
# Entrypoints

INCOMING REQUESTS



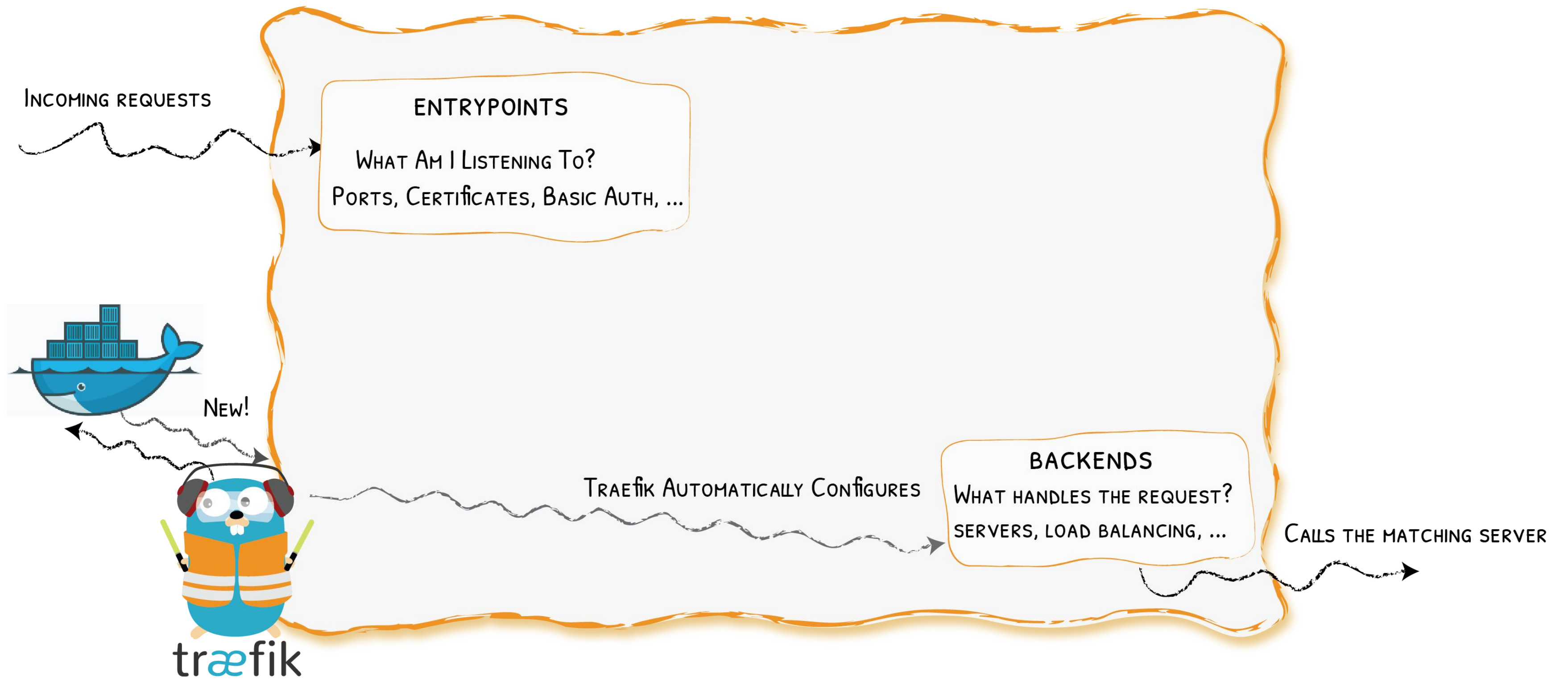
ENTRYPPOINTS

WHAT AM I LISTENING TO?  
PORTS, CERTIFICATES, BASIC AUTH, ...

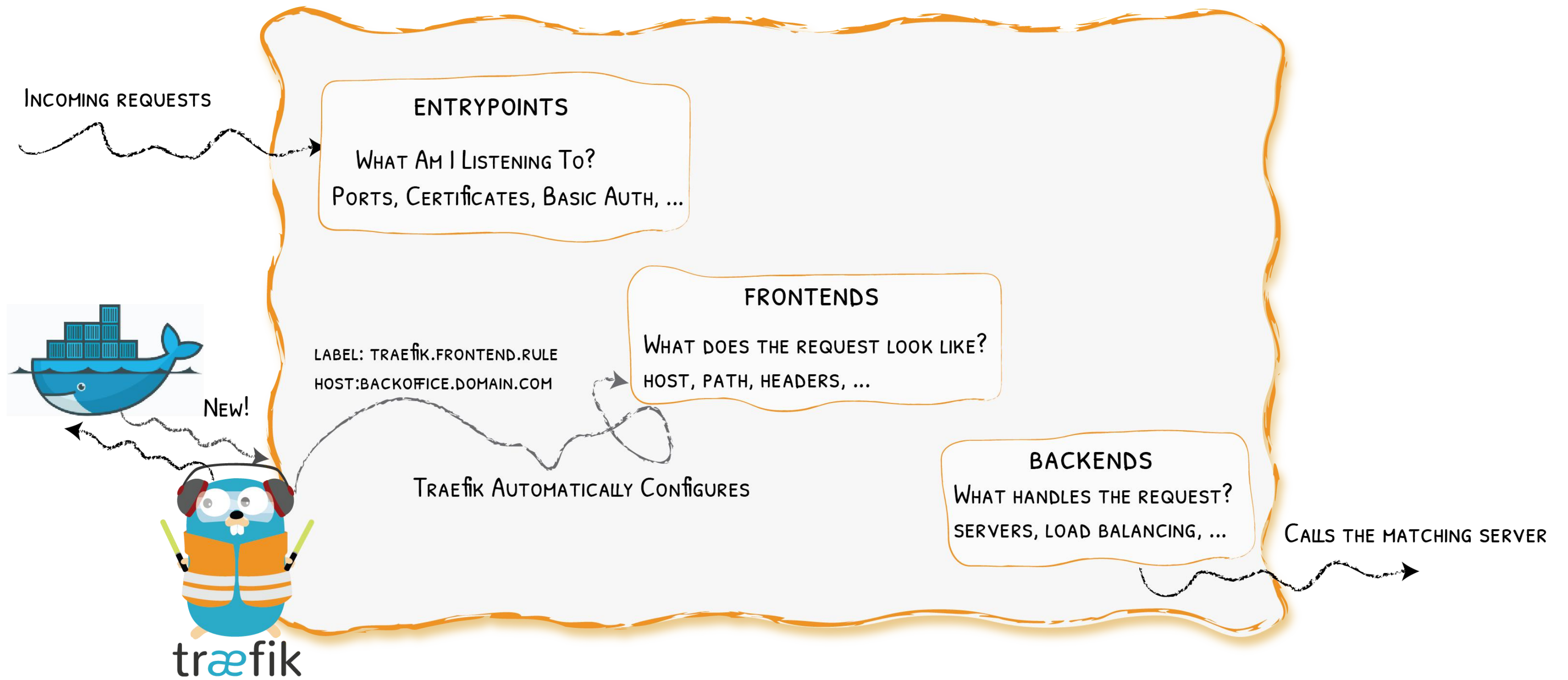


træfik

# Backends

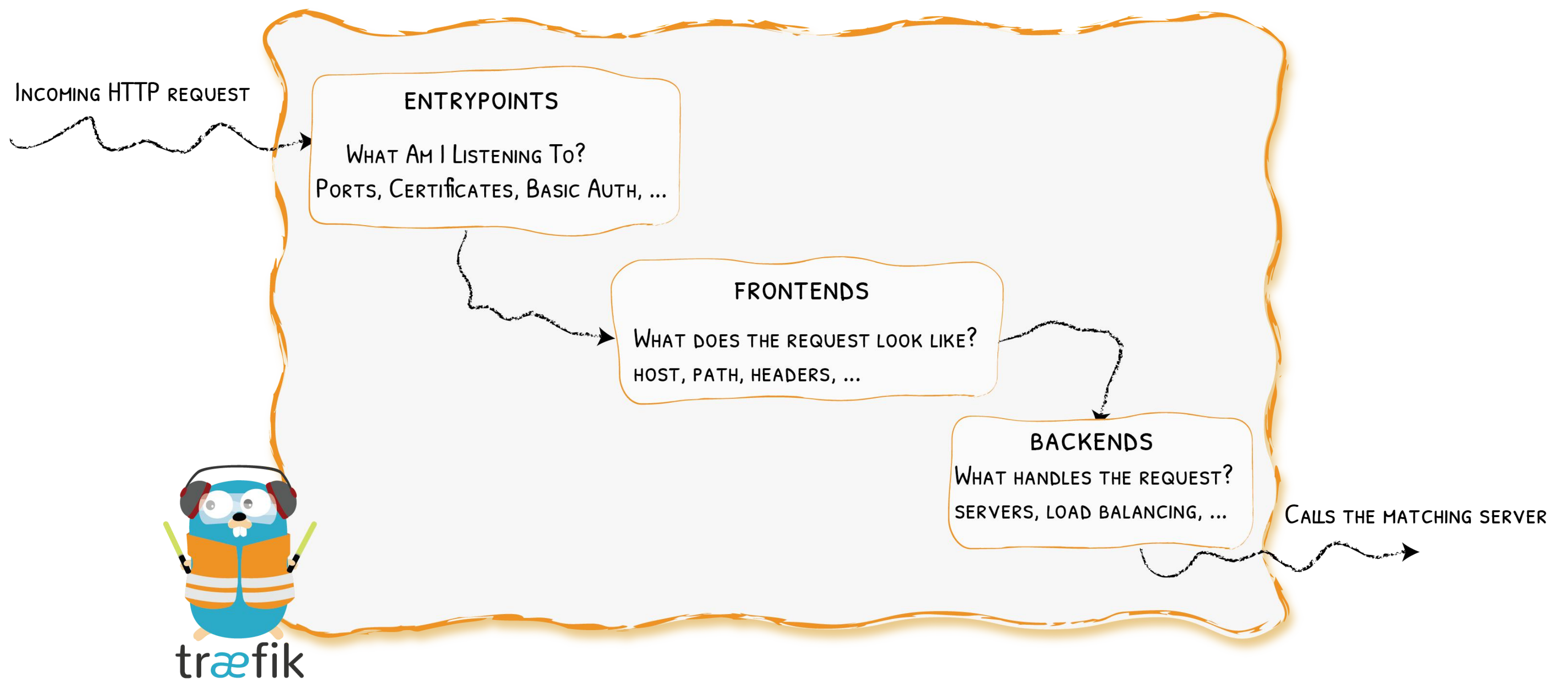


# Frontends



# At A Glance

## TRAEFIK ARCHITECTURE AT A GLANCE



Show Me The Configuration!

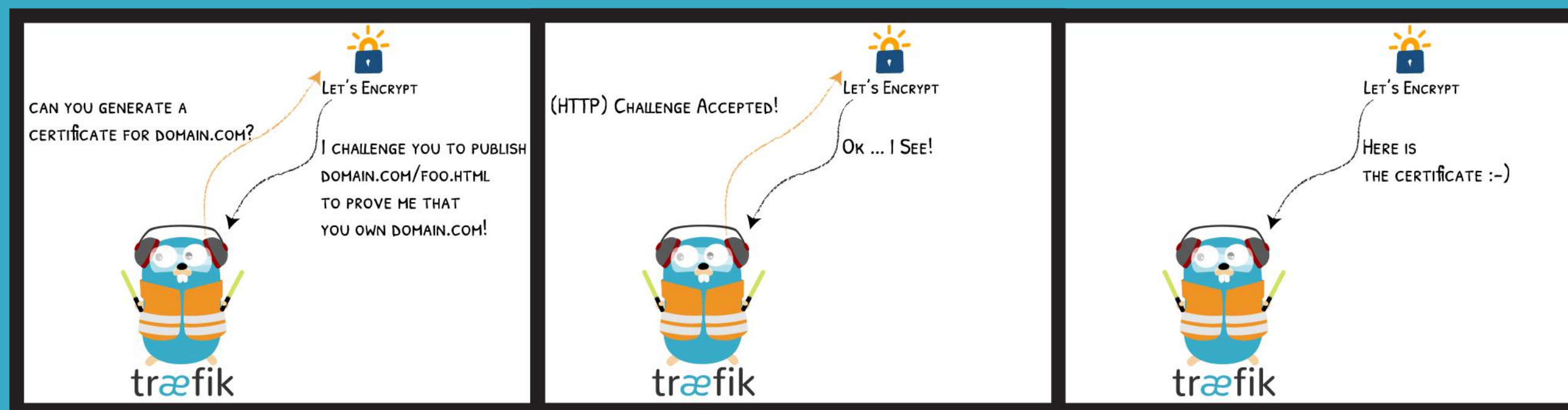


# Keep It Simple

- With :

```
entrypoint:
  image: traefik:v1.7
  command:
    - "--docker"
    - "--docker.domain=mycompany.org"
    - "--acme.email=ssl-admin@mycompany.org"
    - "--acme.httpChallenge.entryPoint=http"
    # Or you could use a TOML file with "--configFile=/etc/traefik/traefik.toml"
volumes:
  - /var/run/docker.sock:/var/run/docker.sock
```

# HTTPS For Everyone With Let's Encrypt



- TLS, DNS and HTTP challenges supported

# With : Simple Backend

```
# https://www.mycompany.org -> http://webserver:80/  
webserver:  
  image: nginx:alpine  
  labels:  
    - "traefik.frontend.rule=Host:www.mycompany.org"
```

# With : Context

```
# https://mycompany.org/jenkins -> http://jenkins:8080/jenkins
jenkins:
  image: jenkins/jenkins:lts
  labels:
    - "traefik.frontend.rule=PathPrefix:/jenkins"
    - "traefik.port=8080" # Because 50000 is also exposed
  environment:
    - JENKINS_OPTS=--prefix=/jenkins
```

# With : Rewrites

```
# https://mycompany.org/gitserver -> http://gitserver:3000/  
gitserver:  
  image: gitea/gitea:1.5  
  labels:  
    - "traefik.frontend.rule=PathPrefixStrip:/gitserver"  
    - "traefik.port=3000" # Because 22 is also exposed
```

# With : Websockets

```
# https://mycompany.org/webterminal -> http://webterminal:7681/  
webterminal:  
  image: ts10922/ttyd  
  labels:  
    - "traefik.frontend.rule=PathPrefixStrip:/webterminal"  
  expose:  
    - "7681"
```

# Traefik With

## TRAEFIK AS YOUR INGRESS CONTROLLER IN KUBERNETES

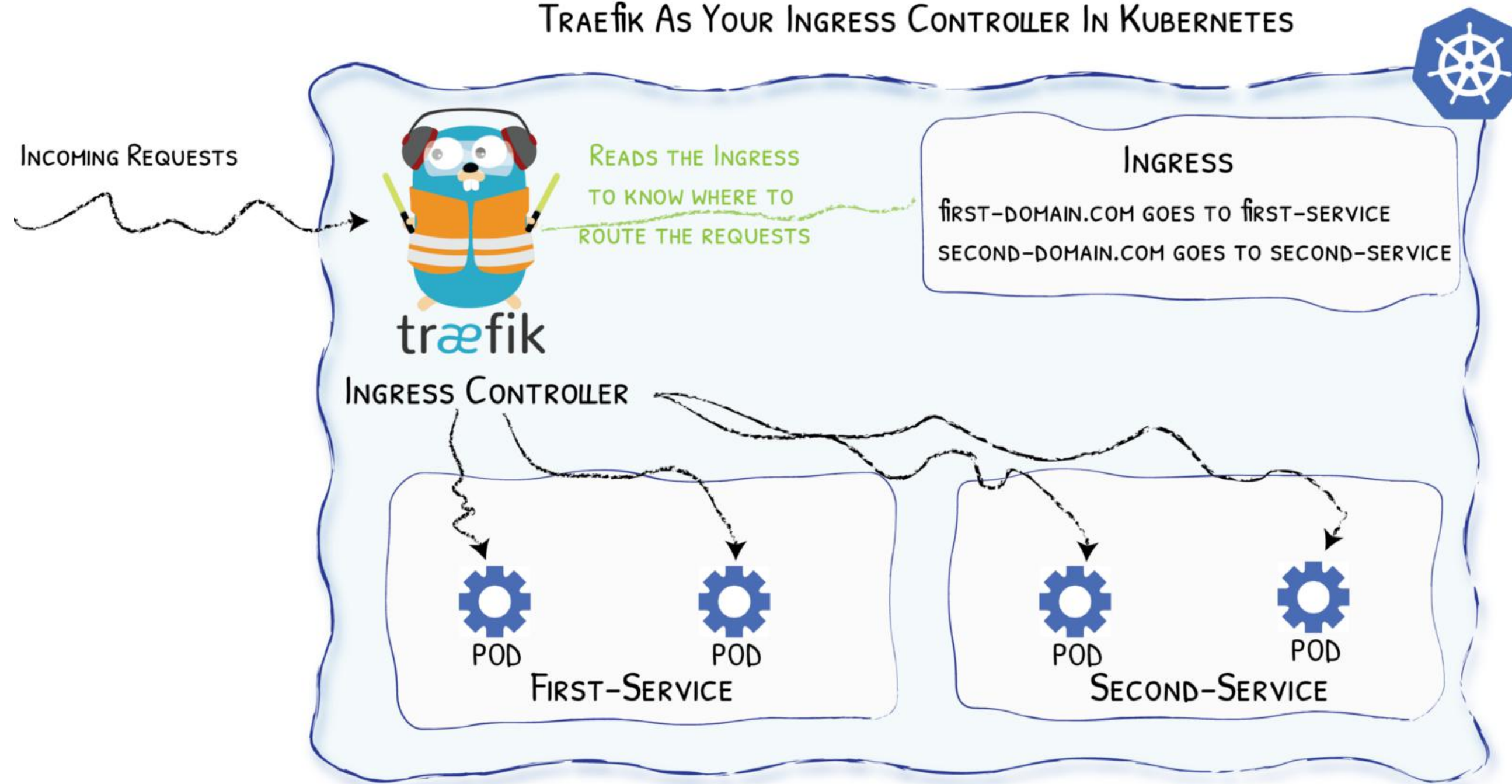


Diagram from <https://medium.com/@geraldcroes>

# Did You Say YAML?

```
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  annotations:
    # kubernetes.io/ingress.class: 'nginx'
    kubernetes.io/ingress.class: 'traefik'
spec:
  rules:
  - host: mycompany.org
    http:
      paths:
      - path: "/whoami"
        backend:
          serviceName: whoami
          servicePort: 80
```



# We Missed Talking About...

A word cloud of various technical terms and concepts, including:

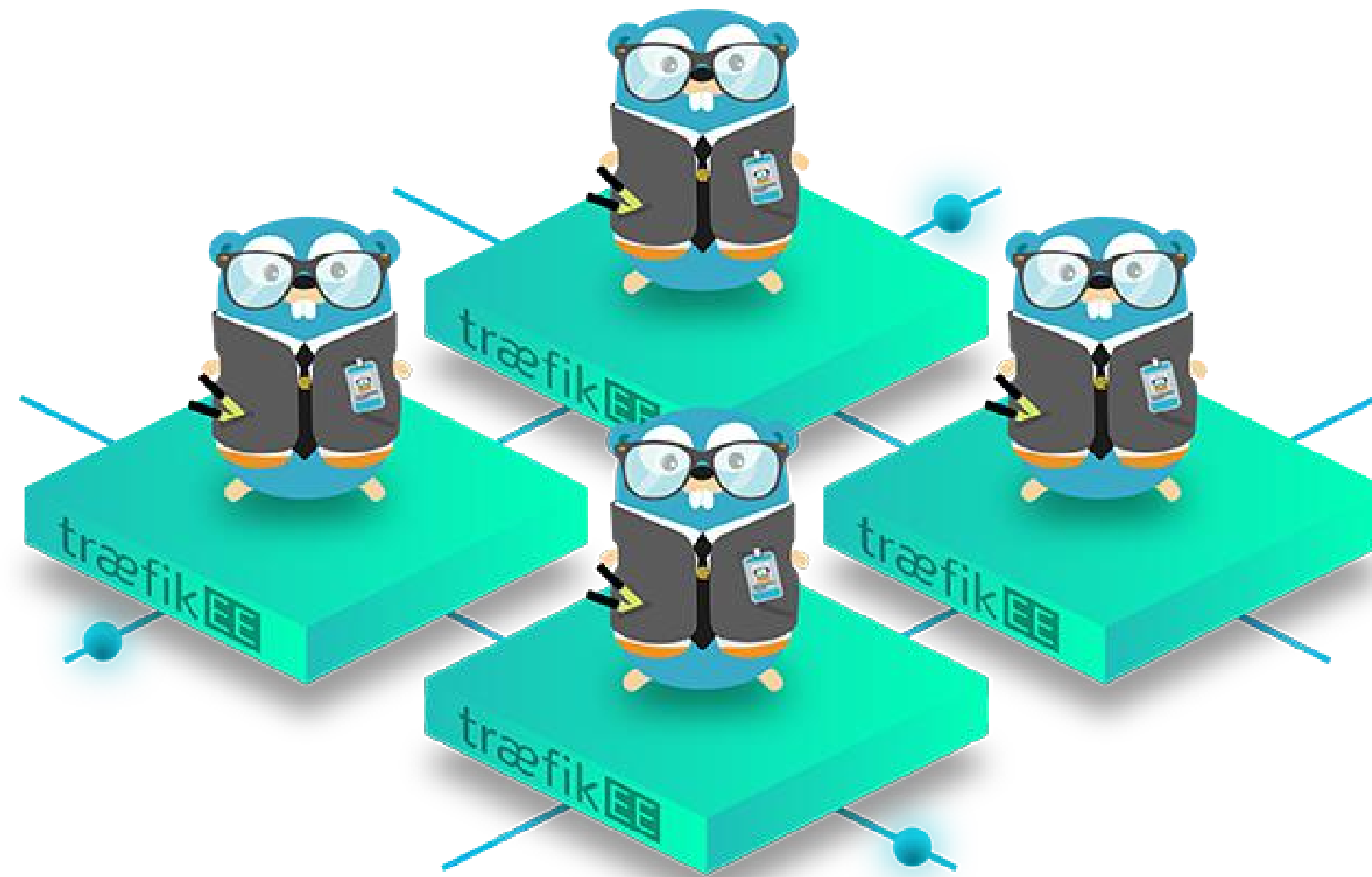
- MESOS
- ZIPKIN
- LIMITING
- KUBERNETES
- Dynamic
- Metrics
- HTTP
- CERTIFICATE
- ERROR
- TLS
- Reverse-Proxy
- HEADERS
- GRPC
- DYNAMIC/WILDCARD
- Security
- Configurations
- Tracing
- PROXY
- SECRETS
- PROMETHEUS
- JAEGER
- WEBSOCKETS
- SSL
- REDIRECTS
- DOCKER
- CHECKS
- PROTOCOL
- HEALTH
- HSTS
- CLUSTER
- AUTH
- RATE
- CONSUL
- SWARM
- MODE

# The Herd



You came to the wrong neighbour

# Traefik Comes In Herd



# HIGH AVAILABILITY

traefik **ENTERPRISE EDITION**

High Availability

# SECURITY

traefik **ENTERPRISE EDITION**

Security

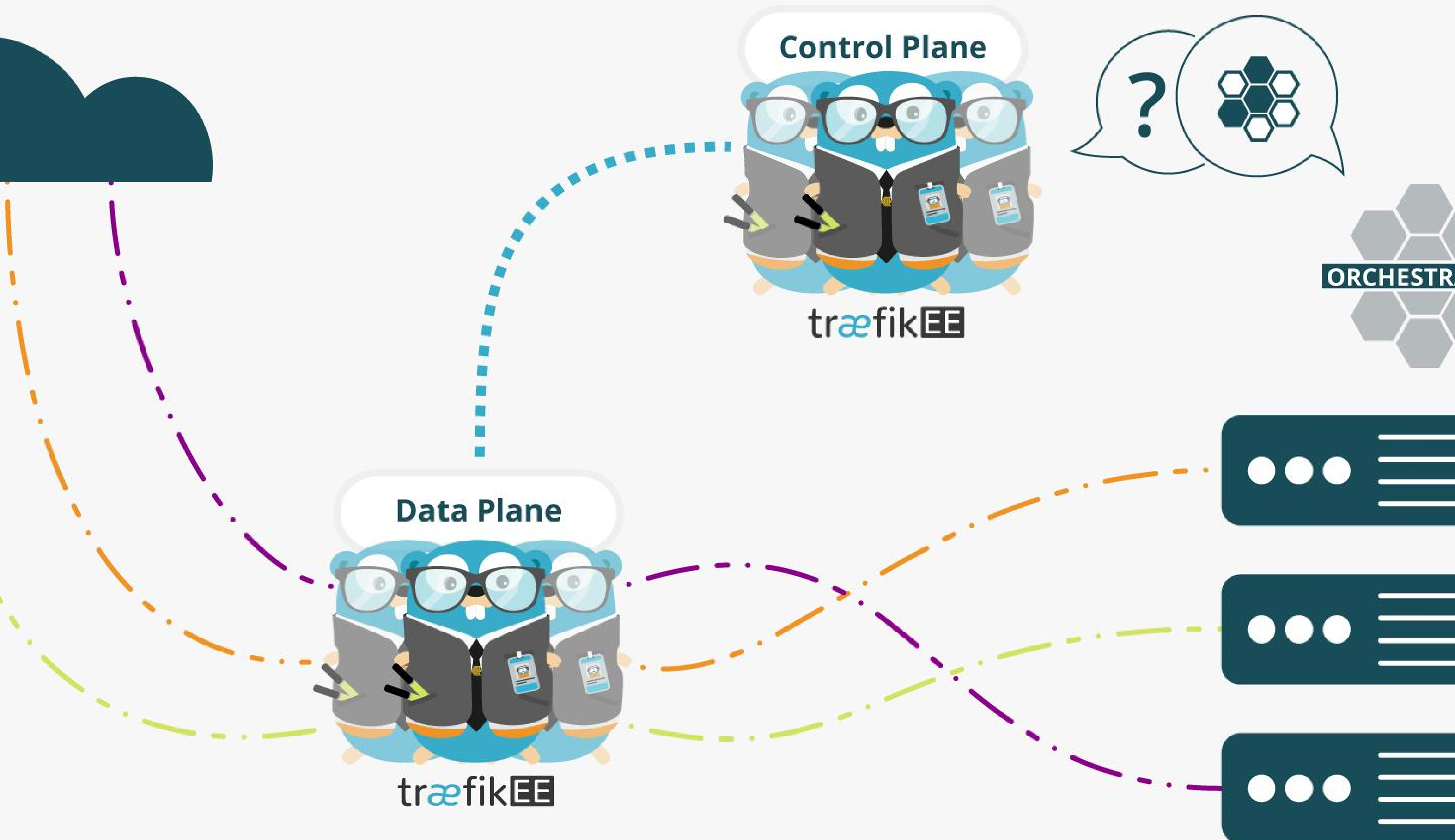
# SCALABILITY

traefik ENTERPRISE EDITION

Scalability

INTERNET

TO YOUR INFRA



# As Simple As Traefik

- Install it:

```
# Cluster Installation
traefikeectl install \
  --licensekey="SuperSecretLicence" \
  --dashboard \
  --kubernetes # Or --swarm
```

- Configure it:

```
# Routing Configuration, same as Traefik's
traefikeectl deploy \
  --acme.email=ssl-admin@mycompany.org
  --acme.tlsChallenge
  ...
```



# Early (Free) Access

<https://containo.us/traefikee>

*But*

*What About Open Source?*

# BACK TO TRAEFIK 2.0



# Revamped Documentation

The screenshot shows the Traefik documentation website in a browser window. The browser's address bar contains the text "Search or enter website name". The website's header includes the Traefik logo, a search bar, and a GitHub repository link showing "21k Stars · 2.1k Forks".

The main content area features a "Welcome" heading and a central diagram illustrating Traefik's role as an Edge Router. The diagram is divided into two main sections: "FROM THE INTERNET" and "TO YOUR INFRASTRUCTURE".

**FROM THE INTERNET:** This section shows three domain names: "API.DOMAIN.COM", "DOMAIN.COM/WEB", and "BACKOFFICE.DOMAIN.COM". These domains are connected to the central Traefik logo, which is depicted as a blue and orange robot wearing a hard hat and a safety vest. A lock icon labeled "HTTPS" is also shown near the domains.

**TO YOUR INFRASTRUCTURE:** This section shows various server components connected to the central Traefik logo. The components include:

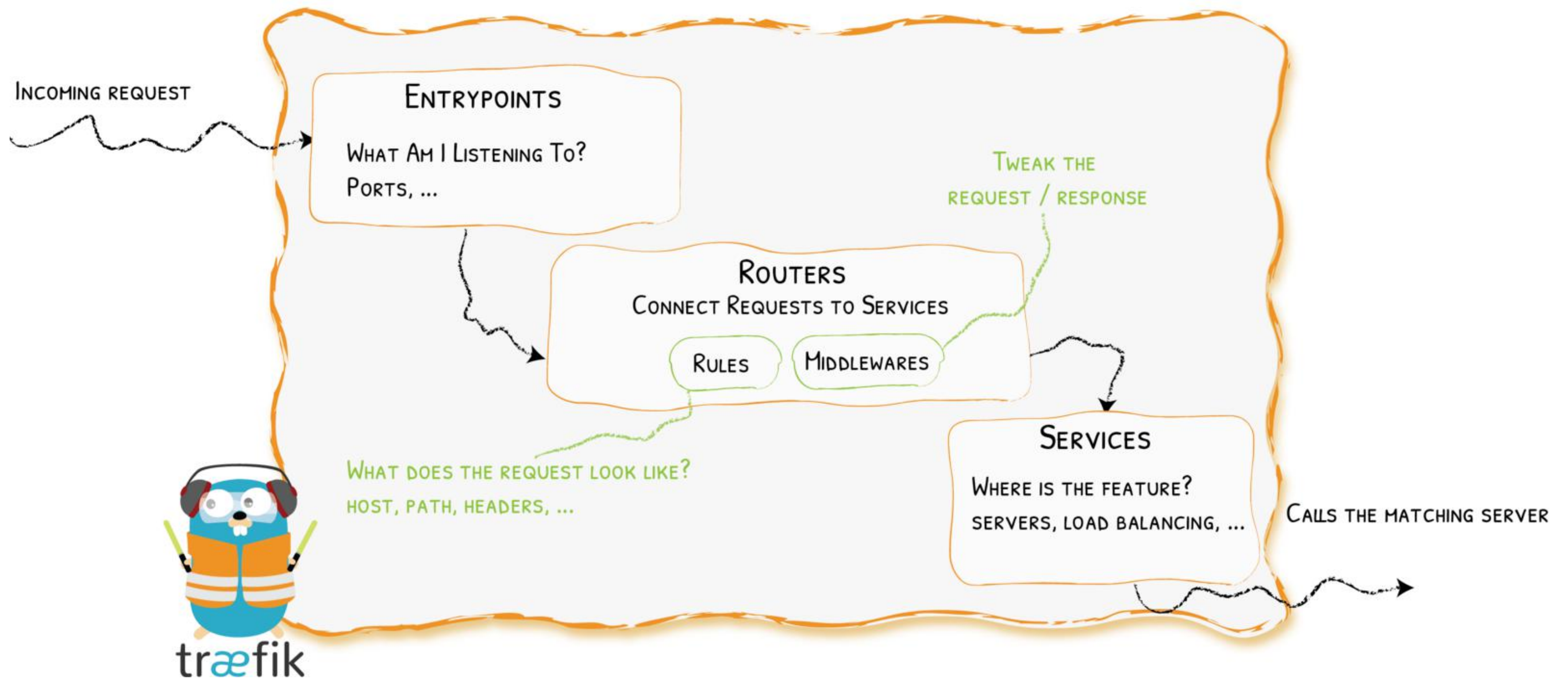
- API SERVER**
- WEB SERVER**
- BACKOFFICE SERVER - 1**
- BACKOFFICE SERVER - 2**
- PRIVATE SERVER**

Additional infrastructure components shown include "KUBERNETES", "MESOS", and "DOCKER". The diagram also highlights key features: "METRICS TRACING LOGS" and "LOAD BALANCING".

Below the diagram, the text reads: "Traefik is an [open-source Edge Router](#) that makes publishing your services a fun and easy experience. It receives requests on behalf of your system and finds out which components are responsible for handling them."

# Clarified Concepts

## TRAEFIK ARCHITECTURE AT A GLANCE



# Expressive Routing Rule Syntax

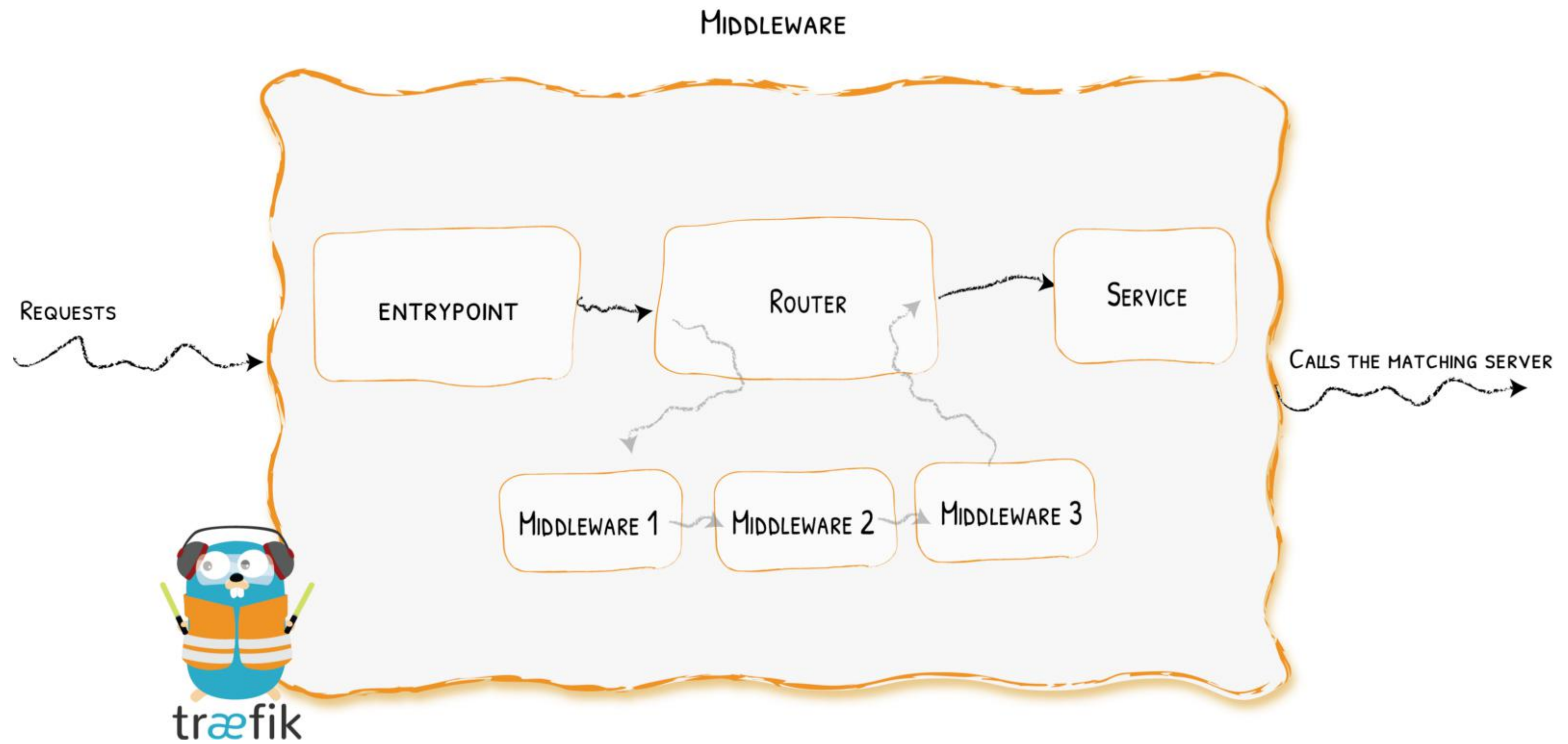


```
Host(`api.dom`) || (Host(`dom`) && Path(`/api`))
```

```
# Send both requests to backend service:  
# https://api.mycompany.com/v2  
# https://api-v2.mycompany.com
```

```
rule=(Host('api.mycompany.com') && PathPrefix('/v2')) || Host('api-v2.mycompany.com')
```

# Middlewares





traefik



HTTP

&

TCP



# Quick Glance

```
[entrypoints]
  [entrypoints.web-secure]
    address = ":443"
```

```
[http]
  [http.routers.to-service-1]
    rule = "Host(`demo.containous.cloud`)"
    service = "service-1"
  [http.routers.to-service-1.tls] # terminates the tls connection at HTTP
```

```
[tcp]
  [tcp.routers.to-service-2]
    rule = "HostSNI(`demo.containous.cloud`)"
    service = "service-2"
  [tcp.routers.to-service-2.tls] # terminates the tls connection at TCP
```

```
[tcp.routers.to-service-3]
  rule = "HostSNI(`demo.containous.cloud`)"
  service = "service-3"
  [tcp.routers.to-service-3.tls]
    passthrough = true # sends encrypted data "as is" to service-3
```

# *And So Much More...*

- Learn more on the [blog post](#)
- Call for contribution: Grab it, Try it, and give us your feedback!

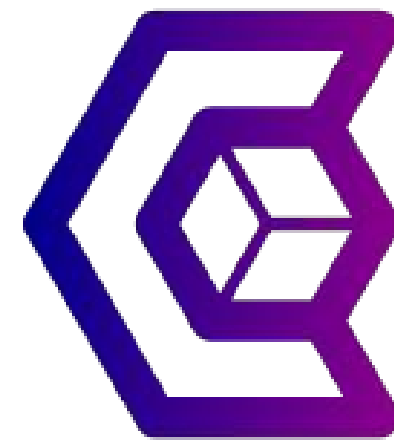
The End



We Have  
Stickers!

træfik

# We Are Hiring!



```
docker run -it containous/jobs
```

# Thank You!

-  @DamienDuportal
-  dduportal



Presentation available at <https://containous.github.io/slides/devopspro-vilnius-2019>